EPA Region 5 Records Ctr.
221519

Superfund Division
Remedial Response Branch #_1_
Section #_3_

Site: Woodstock Municipal Landfill

Item:

FIVE-YEAR REVIEW REPORT

RRB#1	Initial & Date	ORC	Initial & Date
RPM:	BB 8/9/04	Staff Counsel:	
Section Chief:	LJS 8/16/04	Section Chief:	
Branch Chief:	8/23/04	Branch Chief:	
Division Director:	RM 8-23-04	Regional Counsel:	

**If consultation has occurred [ ]

Others: _____

_____

Deputy Regional Administrator: _____

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Comments:

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(EPA:NC:06/23/03)

FIVE-YEAR REVIEW REPORT

Five-Year Review Report

for

Woodstock Municipal Landfill

City of Woodstock

McHenry County, Illinois

August 2004

PREPARED BY:

U.S. EPA REGION 5
Chicago, Illinois

Approved by:

Richard C Karl

Richard C. Karl, Acting Director
Superfund Division

Date:

8-23-04

Five-Year Review Report

Table of Contents

List of Acronyms
(In Order of Appearance)

NAME OR TERM	ACRONYM
United States	U. S.
Environmental Protection Agency	EPA
Record of Decision	ROD
Potentially Responsible Parties	PRPs
Comprehensive Environmental Response, Compensation and Liability Act (Superfund)	CERCLA
National Contingency Plan	NCP
Code of Federal Regulations	CFR
Conestoga-Rovers & Associates	CRA
Polychlorinated Biphenyls	PCBs
Remedial Investigation/Feasibility Study	RI/FS
Maximum Contaminant Levels	MCLs
Remedial Design/Remedial Action	RD/RA
Unilateral Administrative Order	UAO
Preliminary Close-out Report	PCOR
National Priorities List	NPL
Operation and Maintenance	O&M

Executive Summary

This report documents the First Five-Year Review for the Woodstock Municipal Landfill Site in Woodstock, Illinois (the Site). In 2003, Conestoga- Rovers & Associates, a consultant for the Potentially Responsible Parties at the Site, collected samples and inspected the cap over the landfill at the Site in accordance with the approved Operation and Maintenance Plan for the Site. In February 2004, Conestoga- Rovers & Associates submitted the "2003 Annual Monitoring Report" for the Site to the United States (U. S.) Environmental Protection Agency (EPA). The EPA approved this report on August 9, 2004. This Five Year Review utilizes the data in the Conestoga- Rovers & Associates Report and provides an analysis of the protectiveness of the remedy implemented at the Site. The findings indicate that the Woodstock Municipal Landfill Site remedy continues to be protective of human health and the environment. The next Five-Year Report is due in August 2009.

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Woodstock Municipal Landfill		
EPA ID *(from WasteLAN)*: ILD980605943		
Region: 5	**State:** IL	**City/County:** Woodstock/McHenry
SITE STATUS		
NPL status: x Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐Under Construction x Operating ☐ Complete		
Multiple OUs?* ☐ YES x NO	**Construction completion date:** PCOR 09/19/00	
Has site been put into reuse? ☐ YES x NO Note: Plans are pending for soccer fields on the northern portion of the Site.		
REVIEW STATUS		
Lead agency: x EPA ☐ State ☐ Tribe ☐ Other Federal Agency		
Author name: Brad Bradley		
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA Region 5	
Review period: 10/2003 to 08/16/2004		
Date(s) of site inspection: 08/05/2004		

Type of review:

X Post-SARA ☐ Pre-SARA ☐ NPL-Removal only
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead
☐ Regional Discretion

Review number: X 1 (first) ☐ 2 (second) ☐ 3 (third) ☐ Other (specify)

Triggering action:

X Actual RA Onsite Construction at OU #1 ☐ Actual RA Start at OU#____
☐ Construction Completion ☐ Previous Five-Year Review Report
☐ Other (specify)

Triggering action date *(from WasteLAN)*: 08/16/1999

Due date *(five years after triggering action date)*: 08/16/2004

* ["OU" refers to operable unit.]

Issues:

There are no current contamination issues related to the Site; however, the wetland restoration activities for the Site are still pending. EPA has approved a wetland restoration plan, but it has not yet been implemented. EPA will continue to monitor the wetland restoration activities at the Site.

Recommendations and Follow-up Actions:

EPA has reviewed and approved the Wetland Restoration Work Plan and will monitor its implementation, which is scheduled to begin in 2005.

Protectiveness Statement(s):

The remedy at the Woodstock Municipal Landfill Site is protective of human health and the environment because the final remedy has been implemented for the Site and the results of the five- year review sampling indicate that the remedy continues to be protective. EPA will need to continue to monitor the progress of the wetland restoration activities at the Site, which are required due to impacts on wetlands at the Site during remedy implementation.

Other Comments: None.

Five-Year Review Report

I. Introduction

The Woodstock Municipal Landfill Site in Woodstock, Illinois (the Site) is a municipal landfill and trash dump that operated from approximately 1935 until 1975. The remedy for the Site was implemented from September 1999 through September 2000 pursuant to a June 30, 1993 Record of Decision (ROD) and a July 15, 1998 ROD Amendment issued by the United States Environmental Protection Agency (EPA).

Conestoga-Rovers and Associates, the Potentially Responsible Parties' (PRPs) contractor, conducted sampling and prepared a "2003 Annual Monitoring Report" in February 2004 (the Monitoring Report), which was approved by EPA on August 9, 2004. The Monitoring Report is included in this Five-Year Review Report as Appendix 1. The Monitoring Report provides much of the information used to prepare the Five-Year Review Report and is frequently referenced to avoid duplication.

The Purpose of the Review

The purpose of five-year reviews is to determine whether the remedy at a site continues to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them.

Authority for Conducting the Five-Year Review

EPA is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA Section 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for the unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

Who Conducted the Five-Year Review

The PRPs, through their contractor, Conestoga-Rovers & Associates (CRA), conducted all of the sampling that was required for the five-year review. Representatives of CRA performed inspections of the Site, and the EPA Remedial Project Manager visited the site and monitored the integrity of the cover systems at the Site. EPA completed the review based on this information.

Other Review Characteristics

This is the first five-year review for the Woodstock Municipal Landfill Site. The triggering action for this review is the beginning of remedial construction on August 16, 1999. This review is being conducted 1) because the capping remedy at the site allowed hazardous substances to be left on site above levels that allow for unlimited use and unrestricted exposure and 2) to ensure that the natural attenuation remedy for site ground water selected in the ROD Amendment

is effective and ground water contaminant levels are decreasing as anticipated.

II. Site Chronology

The site chronology is tabularized below:

Event	Date
National Priorities List Listing	10/89
Remedial Investigation/Feasibility Study complete	6/30/93
Record of Decision signature	6/30/93
ROD Amendment signature	7/15/98
EPA issued Unilateral Order to PRPs	11/3/99
Remedial Design start (PRP-lead)	9/2/94
Remedial Design complete (PRP-lead)	2/23/99
Remedial Action start (PRP-lead)	8/16/99
Remedial Action complete (PRP-lead)	9/19/00
Preliminary Close-out Report	9/19/00

III. Background

Physical Characteristics

The Woodstock Municipal Landfill Site in Woodstock, Illinois is a former landfill and dump site that operated from 1935 through 1975. The total volume of refuse in the landfill is estimated to be approximately 4.4 million cubic feet. In addition to municipal waste, various industrial wastes were disposed at the Site, including waste paints and coating materials, plating wastes, solvents, waste materials, inks, and drummed material including polychlorinated biphenyls (PCBs). The contaminants present at the Site posed risks to humans via contact with and ingestion of surface soils and potential consumption of ground water contaminated with vinyl chloride. The Site also posed risks to aquatic organisms via contact with contaminated sediments in the wetland areas on-site. The Site is approximately 42 acres in size.

Land and Resource Use

The Site is located on the south side of the City of Woodstock, Illinois, a municipality with a population of approximately 18,200 residents. The site is located south of Davis Road, southwest of the intersection of U. S. Route 14 and Illinois Route 47 (see Figure 1). Land use immediately north of the Site is primarily residential and agricultural. Land use west of the Site is semi-agricultural with much of the land currently classified as wetland. Wetlands are located adjacent to the site on the east. The Kishwaukee River runs south along the southwestern perimeter of the Site. The City of Woodstock Wastewater Treatment Plant and additional wetlands are also located south of the Site.

History of Contamination

The Site was first used as a trash dump and for open burning in 1935. The City of Woodstock acquired the landfill property in 1968 and thereafter used the landfill for disposal of household and municipal solid wastes and various industrial wastes, including waste paints and coating materials, plating wastes, solvents, waste materials, inks, and drummed material including polychlorinated biphenyls (PCBs). The City of Woodstock discontinued landfill disposal activities at the Site in 1975, but used the property for landfarming of municipal sewage sludge between 1983 and 1988.

Initial Response

The Site was listed on the National Priorities List on October 4, 1989. In September, 1989, the City of Woodstock and Allied Signal entered into an Administrative Consent Order with EPA to perform a Remedial Investigation/Feasibility Study (RI/FS) for the Site. The RI/FS was concluded in June 1993.

The results of the Remedial Investigation (RI) Report indicated that vinyl chloride was present in the ground water at levels that exceed the Maximum Contaminant Level (MCL) of 2 parts per billion established under the Safe Drinking Water Act. A test pit excavated during the RI yielded an intact drum containing PCBs (approximately 14 percent), toluene (approximately 2 percent), iron, mercury, and various volatile and semi-volatile compounds. Contaminants in leachate gas and leachate samples included volatile and semi-volatile compounds. The leachate concentrations for benzene, arsenic, barium, chromium, copper, lead, mercury, and nickel exceeded the associated MCLs for these contaminants. Sediment samples collected from the surrounding wetlands and runoff areas from the landfill contained similar contamination, but at lower concentrations.

Basis for Taking Action

The primary exposure pathway for humans identified during the Remedial Investigation/Feasibility Study for the Site was direct contact and ingestion of surface soils by trespassers. Unacceptable potential risks were also identified for consumption of leachate/ground water from the Site and consumption of ground water contaminated with vinyl chloride and arsenic by off-site residents. Potential ecological risks were posed by exposure of terrestrial mammals to surface soils contaminated with copper, mercury, and zinc; exposure of aquatic species to iron; and exposure of migratory birds to chromium, iron, nickel, zinc, polyaromatic hydrocarbons, volatile organics, and semi-volatile organics.

IV. Remedial Actions

Remedy Selection

The Remedial Action selected for the Site in the March 30, 1993 Record of Decision (ROD) included a geosynthetic clay cover or "cap" over the landfill; ground water extraction, treatment, and discharge; cap and ground water monitoring; and institutional controls. The July 15, 1998 ROD Amendment allowed for natural attenuation of the vinyl chloride plume, with ground water extraction, treatment, and discharge as a contingent remedy; and mitigation (as opposed to restoration) of wetland areas impacted by the remedial action. The wetland mitigation was necessary due to the physical impacts on the surrounding wetlands of placing the cap on the Site.

Remedy Implementation

On March 30, 1994, EPA issued special notice letters to several PRPs to enter into negotiations for a Consent Decree for Remedial Design and Remedial Action (RD/RA) to implement the March 30, 1993 ROD. By letter on June 3, 1994, and as supplemented by a letter on June 7, 1994, the City of Woodstock (owner) and Allied Signal Corporation (a generator) declined to implement the remedy as outlined in the March 30, 1993 ROD. EPA executed the ROD Amendment on July 15, 1998. On November 3, 1999, after negotiations with the potentially responsible parties (PRPs) failed, EPA issued a Unilateral Administrative Order (UAO) to the City of Woodstock and Allied Signal Corporation to implement the Site remedy outlined in the ROD Amendment. Preliminary remedial construction began on August 16, 1999, prior to the issuance of the UAO.

The RA continued and was completed in September 2000. A preliminary close out report (PCOR) for the Site was issued on September 19, 2000.

The wetland mitigation required by the ROD Amendment has not yet been completed. EPA approved a wetland mitigation plan, which is scheduled for implementation starting in 2005. The institutional controls required by the ROD and ROD Amendment have been put into place by the City of Woodstock. The institutional controls are in the form of restrictive covenants that limit the future uses of the Site and place restrictions on the usage and placement of wells at the Site (for EPA-approved monitoring only). The institutional controls are enforceable by the City of Woodstock. The Site has not yet been put into reuse, but there are pending plans to construct soccer fields on the northern portion of the Site within the next two years.

Due to the fact that wastes were left in place, via capping of the landfill, annual inspections to determine the integrity of the cap and ground water and leachate monitoring must be conducted. Given that the monitoring programs will continue for a minimum of 30 years, the Woodstock Municipal Landfill Site will not be deleted from the National Priorities List (NPL) for a number of years.

V. Progress Since the Last Review

This is the first five-year review for the Site.

VI. Five-Year Review Process

Administrative Components

The sampling activities, which are required pursuant to the Operation and Maintenance Plan for the Site and were performed during the five-year review process are detailed in the attached Monitoring Report. Illinois EPA was notified of the five-year review and notice was published in the local newspaper in early July 2004. The completed five-year review report will be placed in the site information repository, and notice of completion of the five-year review will be published in the local newspaper.

Community Involvement/Interviews

EPA published notice of the five-year review in the local newspaper in early July 2004. No one has raised any concerns, either verbally or in writing, regarding the five-year review for the Site. No interviews were conducted.

Document and Data Review

The list of documents and data reviewed in preparing for this Five-Year Review Report is listed in the attachment entitled "List of Documents Reviewed".

Site Inspection

The Woodstock Municipal Landfill Site is physically inspected annually in accordance with the Operation and Maintenance manual for the Site. The most recent inspection occurred in fall 2003. The results of this inspection are included in the Monitoring Report. The EPA inspected the site on an additional occasion in conjunction with the five- year review, on August 5, 2004. The inspection involved observations of the integrity of the cap on the Site, which was acceptable.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents? Yes.

Remedial Action Performance

The primary exposure pathway at the Site was direct contact and ingestion of contaminated

surface soil, and potential pathways existed for consumption of leachate/ground water on- site and off-site consumption of ground water contaminated with vinyl chloride. The capping of the landfill provides a barrier to the primary exposure pathway, and the cap was intact and had no breaches during the annual inspection and the EPA inspection on August 5, 2004. As indicated by the results of ground water monitoring data in the Monitoring Report, the remedy has been effective in addressing the ground water contamination at the Site. The vinyl chloride concentrations in ground water are continuing to decline (see Figures 2 and 3), and the only other contaminants that were present above any applicable standard were iron and manganese, which exceeded the secondary standards (odor, color, taste). Iron and manganese are prevalent in the soil in the area of the Site, and do not pose a health risk at the concentrations found at the Site.

In summary, the data gathered during the five-year review indicate that the remedy continues to function as designed, is performing as expected, and that the containment of contaminants is effective.

System Operation and Maintenance

The remedy for the Site does not include any operating systems; other than annual data collection (which is also used for five-year reviews), the Operation and Maintenance (O&M) for the Site consists of annual site inspections to assess the integrity of the soil cap and make repairs, as needed. These inspections have been and will continue to be an effective means to ensure the cap integrity. There have been no significant problems observed during any of the recent cap inspections.

Opportunities for Optimization

Since there are no operating systems at the Site, there are limited opportunities for optimization of O&M. Prior to each five- year review, EPA and/or the PRPs may identify any sampling constituents that may be eliminated from the list of analytes. Since this was the first five-year review, this will be discussed prior to the second five-year review for the Site.

Early Indicators of Potential Issues

Since there are no operating systems at the Site, the only early indicators of potential issues would be physical observations of breeches in the cap or increases in the area and/or contaminant concentrations in the ground water plume. The data collected for the five-year review indicate that none of these issues are currently present. EPA will continue to provide oversight for the implementation of the wetland restoration activities, which are scheduled to start in 2005.

Implementation of Institutional Controls and Other Measures

Institutional Controls for the Site have been put into place by the City of Woodstock; thus, the institutional controls component of the ROD and ROD Amendment has been implemented and offers an additional layer of protection regarding the integrity of the landfill cap.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid? Yes.

Changes in Standards and To Be Considered Criteria

There have been no changes in standards or To Be Considered criteria since the start of remedial construction at the Site.

Changes in Exposure Pathways

There have been no changes in the potential exposure pathways at the Site since the implementation of the remedy for the Site. There have been no land use changes at the Site; however, plans have been tentatively discussed for reuse of the Site.

Changes in Toxicity and Other Contaminant Characteristics

Neither the toxicity factors for the contaminants of concern nor other contaminant characteristics have changed in a way that could affect the protectiveness of the remedy. Vinyl chloride is the primary contaminant of concern in ground water, and generally degrades quickly to less toxic byproducts.

Changes in Risk Assessment Methods

Standardized risk assessment methods have not changed in a way that could affect the protectiveness of the remedy.

Expected Progress Toward Meeting Remedial Action Objectives

The remedy for the Site is progressing as expected. Remedial Action Objectives have either been met (capping of the landfill to block the direct contact pathway) or are progressing in a manner that is acceptable and will result in the Remedial Action Objectives being met within a reasonable time frame (continuing reductions in vinyl chloride concentrations in ground water monitoring wells), and the monitoring programs will continue to ensure that any changes in contaminant levels will be detected and addressed, if necessary.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy? No.

There have been no newly identified ecological risks, impacts from natural disasters, or any other information that has been identified that could affect the protectiveness of the remedy for the Site.

VIII. Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Implementation of wetland mitigation activities	N	N

Based on the Monitoring Report and physical observations made during the inspections of the Site, there are no issues that currently affect the protectiveness of the remedy outlined in the ROD, but the presence of vinyl chloride in the ground water could affect the future protectiveness of the remedy if the plume were to expand. There are no indications that this will happen; however, the ground water monitoring data must continue to be analyzed to ensure that the monitored natural attenuation remedy for the ground water continues to effectively reduce the vinyl chloride concentrations in the ground water.

IX. Recommendations and Follow-up Actions

Issue	Recommendations /Follow- up actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)
Wetland mitigation activities	Need to be implemented	PRPs	EPA	start- 2005 complete-2008	– current – future

EPA will work with the PRPs to make sure that the wetland mitigation activities outlined in the wetland mitigation plan are satisfactorily performed.

X. Protectiveness Statement

The remedy at the Woodstock Municipal Landfill Site is protective of human health and the

environment because the final remedy has been fully implemented, and the sampling data presented in the Monitoring Report indicate that the remedy continues to be effective in addressing the exposure pathways that were identified at the Site.

XI. Next Review

The sampling activities for the next five-year review for the Woodstock Municipal Landfill Site will be performed in year 2008, with the Second Five-Year Review Report due five years from the date of signature of this Five-Year Review Report (August 2009).

Attachments

List of Documents Reviewed
Figure 1-Site Map
Figure 2-Plot of vinyl chloride concentrations over time at Monitoring Well 4D
Figure 3-Plot of vinyl chloride concentrations over time at Monitoring Well 8

Appendices

Appendix 1-CD ROM-February 2004 "2003 Annual Monitoring Report" for the Site

LIST OF DOCUMENTS REVIEWED
(In Chronological Order)

1. Record of Decision for the Woodstock Municipal Landfill Site - March 30,1993 (EPA)

2. Record of Decision Amendment - July 15,1998 (EPA)

3. Amended Unilateral Administrative Order for Remedial Action- November 3,1999 (EPA)

4. Preliminary Close-Out Report - September 19, 2000 (EPA)

5. Comprehensive Five-Year Review Guidance- June 2001 (EPA)

6. 2003 Annual Monitoring Report for Woodstock Municipal Landfill Site- February 2004 (Conestoga-Rovers & Associates)

Figure 2

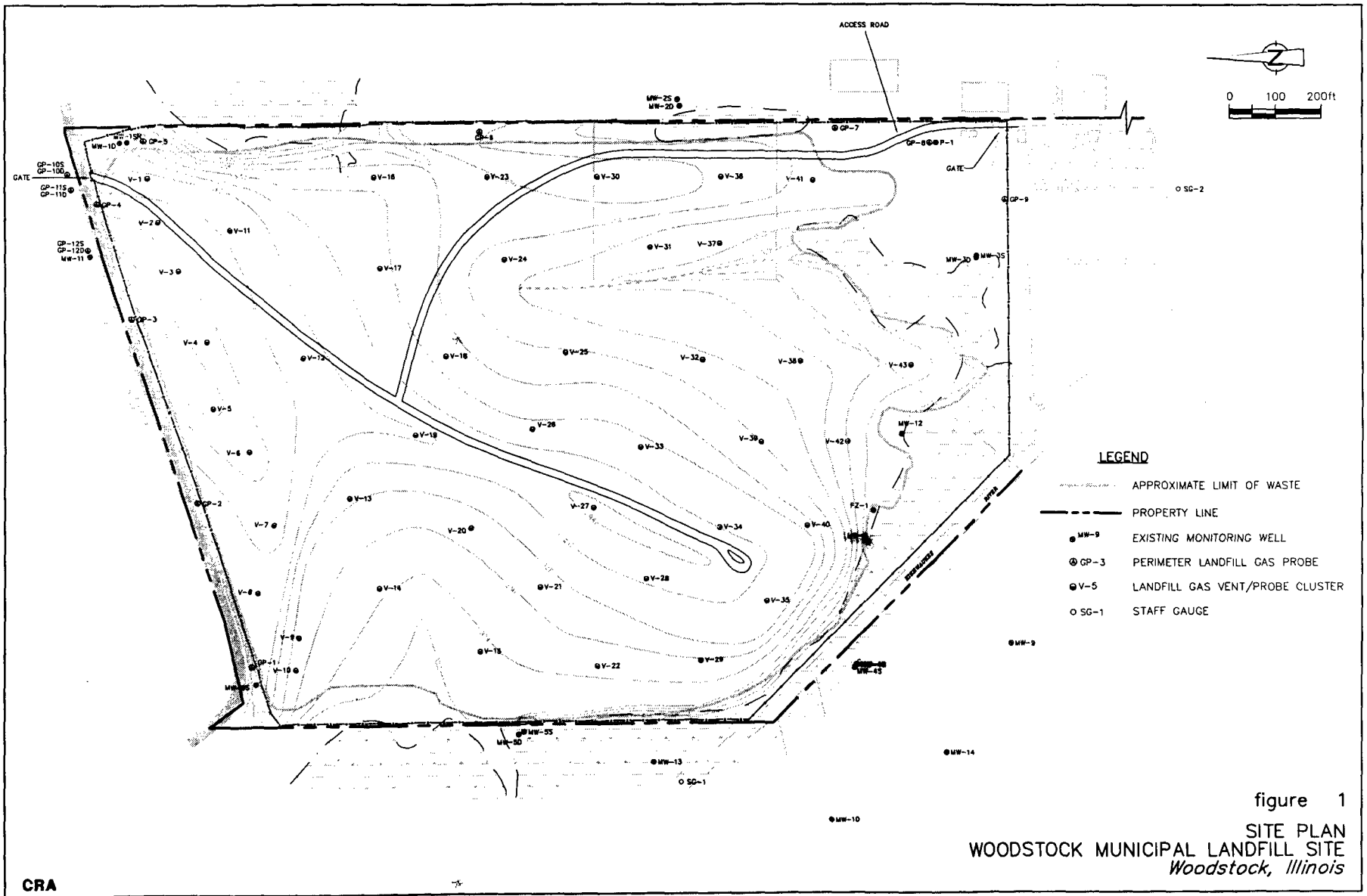


figure 1

SITE PLAN
WOODSTOCK MUNICIPAL LANDFILL SITE
Woodstock, Illinois

CRA

17224-2004(006)GN-SP001 JAN 13/2004

Figure 2

PLOT OF VINYL CHLORIDE CONCENTRATION vs. TIME
MONITORING WELL MW-4D
2003 ANNUAL MONITROING EVENT
WOODSTOCK MUNICIPAL LANDFILL SITE
WOODSTOCK, ILLINOIS

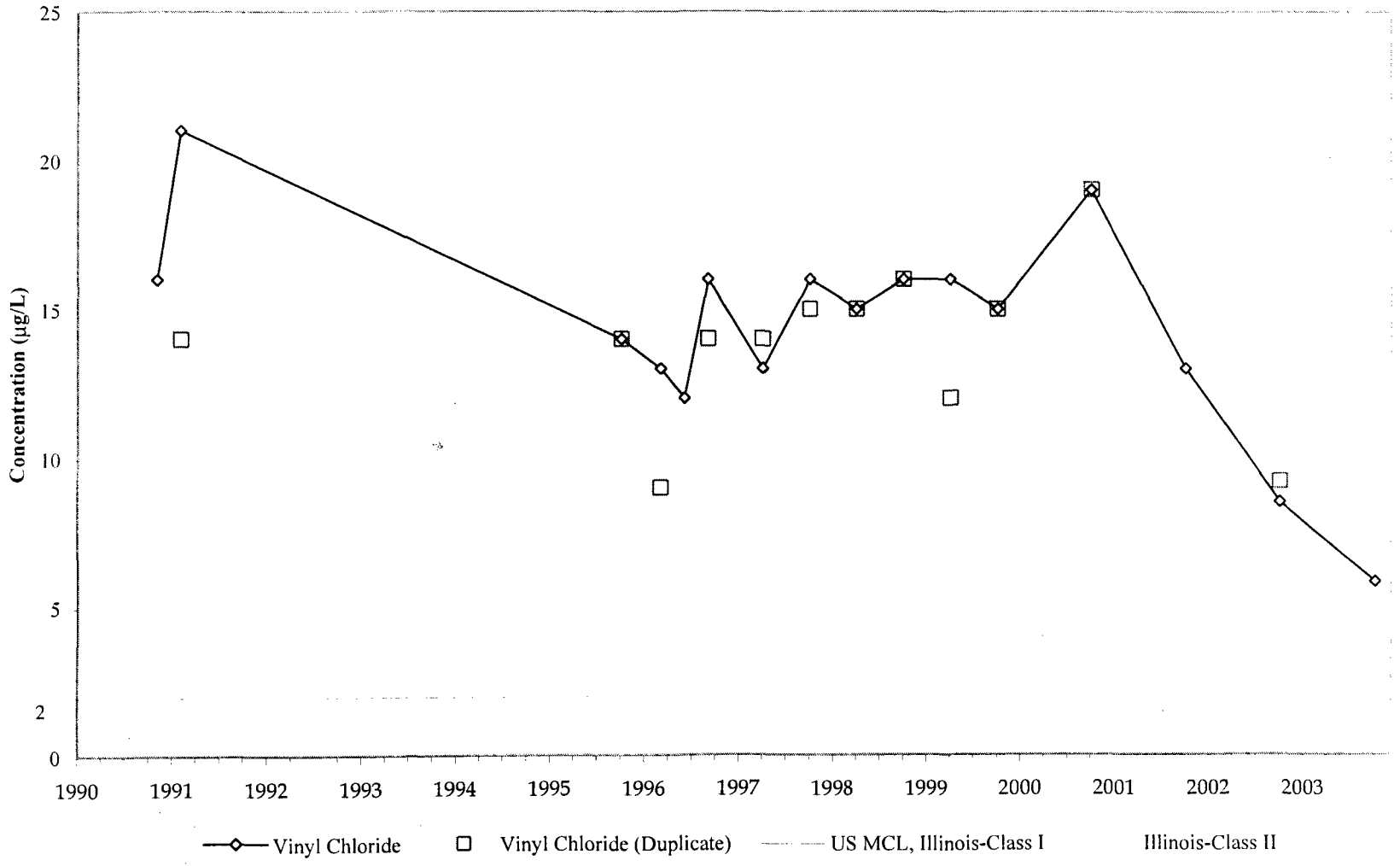
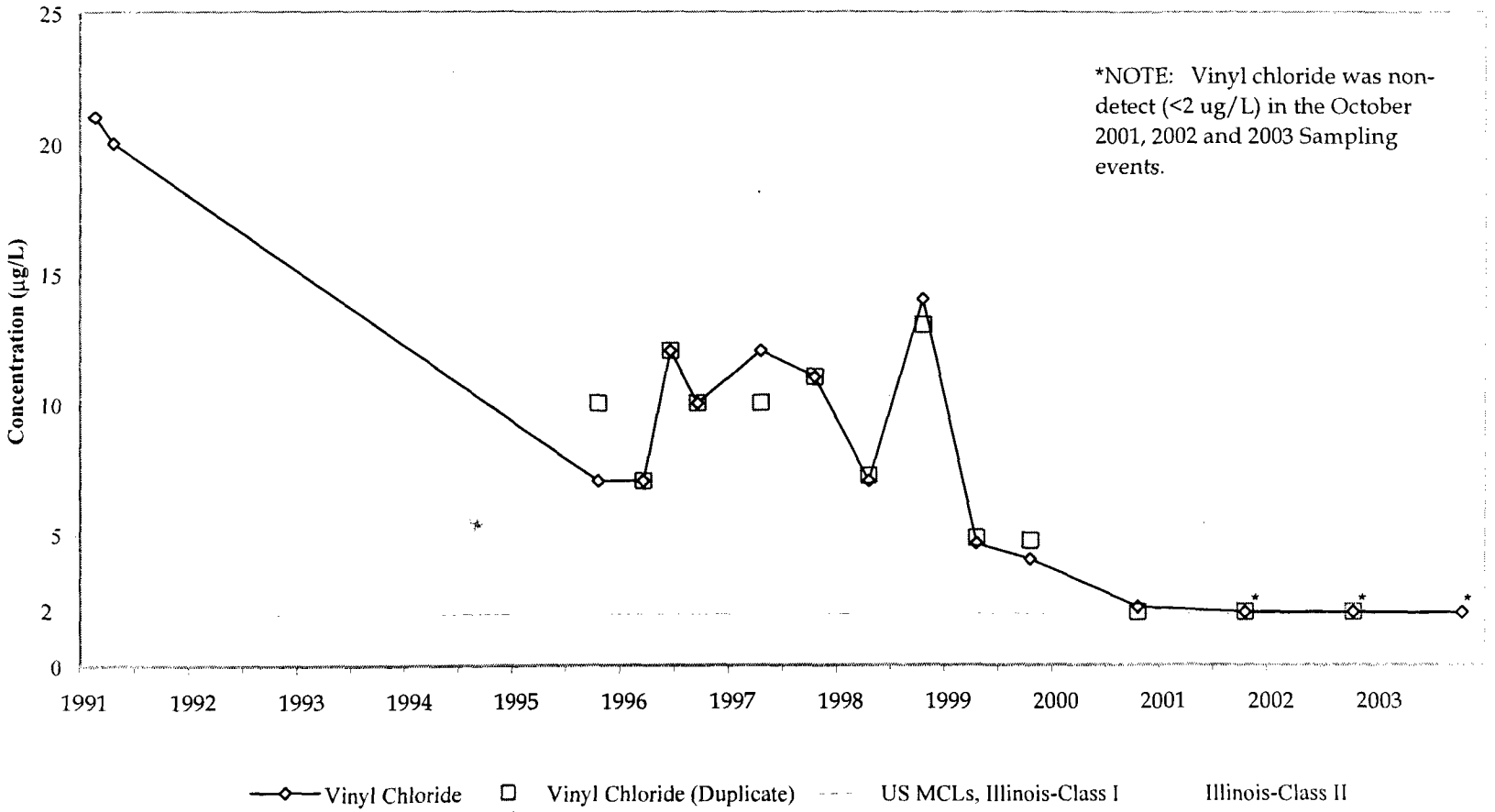


Figure 3

PLOT OF VINYL CHLORIDE CONCENTRATION vs. TIME
MONITORING WELL MW-8
2003 ANNUAL MONITORING EVENT
WOODSTOCK MUNICIPAL LANDFILL SITE
WOODSTOCK, ILLINOIS



APPENDIX 1

CD ROM Containing 2003 Annual Monitoring Report for the Woodstock Municipal Landfill Site-Woodstock, Illinois